

**Scope of Work**  
**Subsurface Investigation**  
**Very High Frequency Omnidirectional Range with collocated TACAN antenna**  
**(VORTAC)**  
**Scholes International Airport, Galveston, Texas**  
**23 January 2009**

**Introduction:** The FAA is currently preparing an engineering and construction package for the replacement of a VORTAC facility at Scholes International Airport in Galveston, Texas. A subsurface investigation is required to assist the project engineers in facility design. The proposed site is located on airport property, approximately ½ mile from the Gulf of Mexico, as shown on the attached site plan drawing VUH-D-VOR-C001.

**VOR Description:** The VORTAC facility will consist of a 19' x 32' precast concrete equipment shelter supported on a 15-foot tall steel frame. The equipment shelter will be surrounded by a 50-foot diameter maintenance platform. Another 60-foot diameter platform which will serve as a signal counterpoise will be located 15 feet above the maintenance platform. See the attached drawing VUH-D-VOR-S002 for proposed shelter foundation layout and details, and a table of maximum loads for column foundations. The tabulated loads are maximum loads for individual foundations for various load cases. The total lateral force transmitted to the foundation due to wind, flood, and wave loads is estimated at 47 kips. Due to the high water table and salt water exposure, precast concrete piles are anticipated for the foundation system, with a cast in place concrete pile cap connecting the tops of all piles. In addition, a 50' tall monopole for a monitor antenna will be installed approximately 30' from the edge of the VOR frame. The maximum lateral force and overturning moment transmitted to the top of antenna mast foundation are estimated at 3 kips and 90 foot-kips, respectively. The existing site consists of a plot approximately 100' x 100', accessible via an asphalt access road connecting to Runway 13. The existing facility will be removed during the initial phase of construction, and the new facility installed in the same location. Proposed locations for borings are shown on the attached site plan.

**Task Description:** The contractor shall provide all personnel, equipment, tools, materials, supplies, supervision, labor and other items necessary to complete the following work activities:

1. Obtain two soil borings, at opposite corners of the facility, to the depth required to evaluate the suitability of the proposed foundation system.
2. Classify and characterize the soils in accordance with the Unified Soil Classification System (ASTM D-2487). Provide hard copies of boring logs to the FAA as soon as possible, so that they can be incorporated into FAA construction documents as soon as possible.
3. Determine the soil properties needed for foundation design, such as skin friction and end bearing capacity for piles, or other properties if needed for other recommended foundation

systems. Provide recommendations for design and construction of the foundation system, including type of foundation, and minimum foundation size and depth.

4. Provide recommendations for construction specifications including pile fabrication, installation, and inspection. Make one site visit to observe pile installation and use Pile Driving Analysis techniques to estimate pile bearing capacity.

5. Assemble all of the above information into a bound report. A total of two copies of the report shall be submitted to the FAA. The original report shall be signed by a properly registered engineer within the State of Texas.

**Additional Information:**

Underground utility lines, tanks, or structures shall be located and clearly marked before soil-boring operations are started. All permits and soil boring plans shall be submitted and approved by work is started.

Cuttings, development water, and other investigation derived waste from geotechnical soil borings shall be managed in a manner consistent with the intent and purposes of the permit and registration application procedures and requirements of the Texas Commission on Environmental Quality.

Access to the site for drilling and sampling must be coordinated with the FAA one week prior to the site visit, so that the FAA can make escort arrangements. The point of contact for site visit coordination is Chris Glatt, tel. no. 816-329-3573.